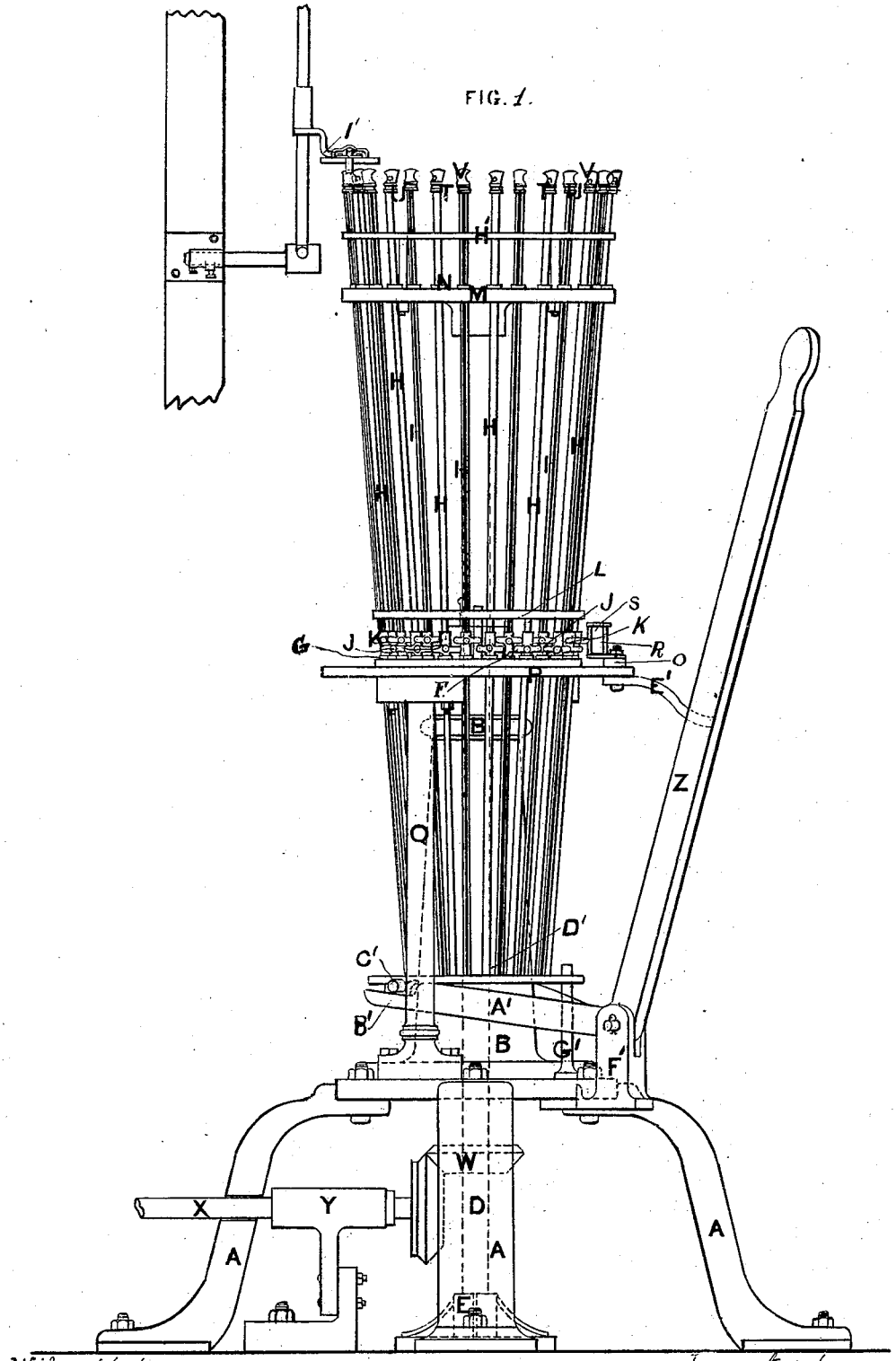
6 Sheets—Sheet 1

W. ILLINGWORTH & C. ZEIDLER.

Machine for Making Skeps or other Baskets.

No. 204,825. **Patented June 11, 1878.**

FIG. 1.



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W. ILLINGWORTH & C. ZEIDLER.

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FIG. 2.

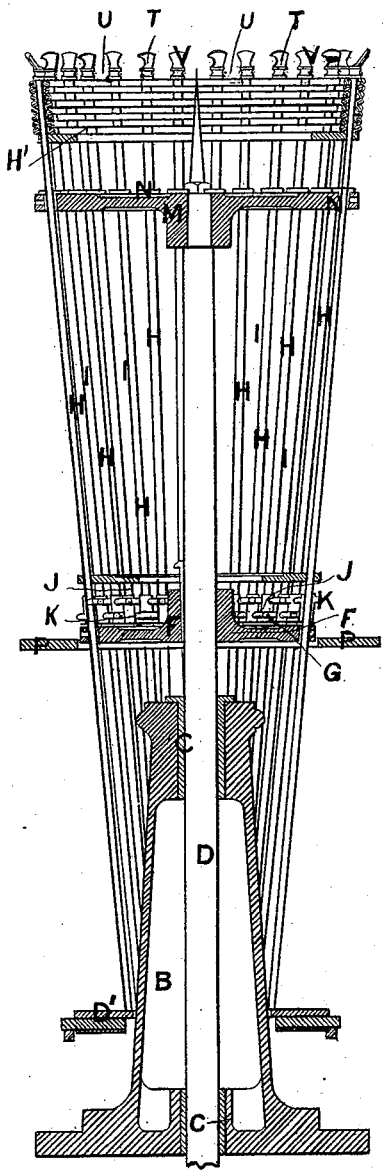
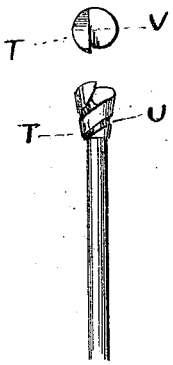


FIG. 2*



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W. ILLINGWORTH & C. ZEIDLER.

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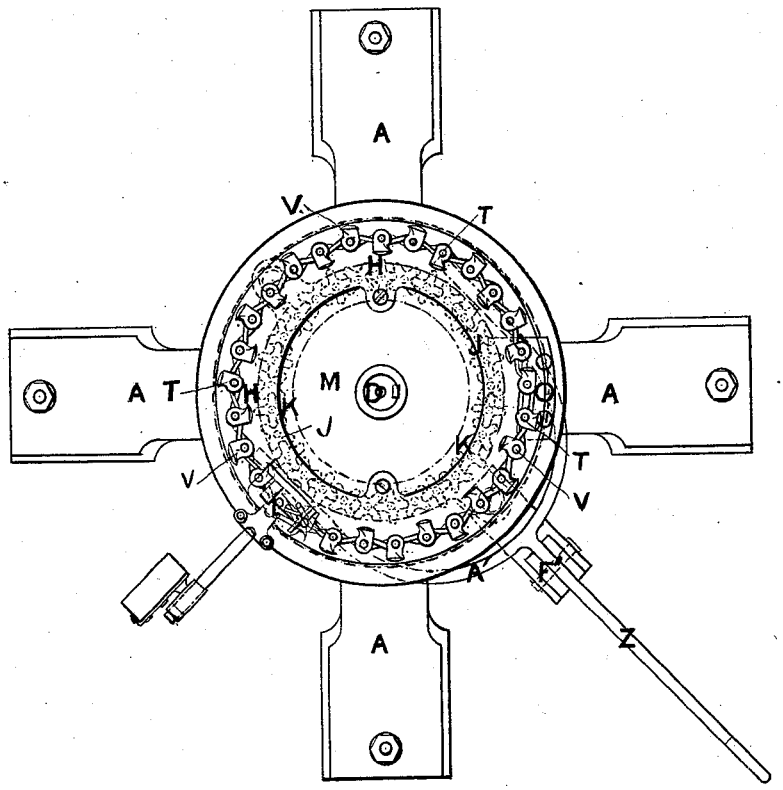
FIG. 3.



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6 Sheets—Sheet 4.

W. ILLINGWORTH & C. ZEIDLER.

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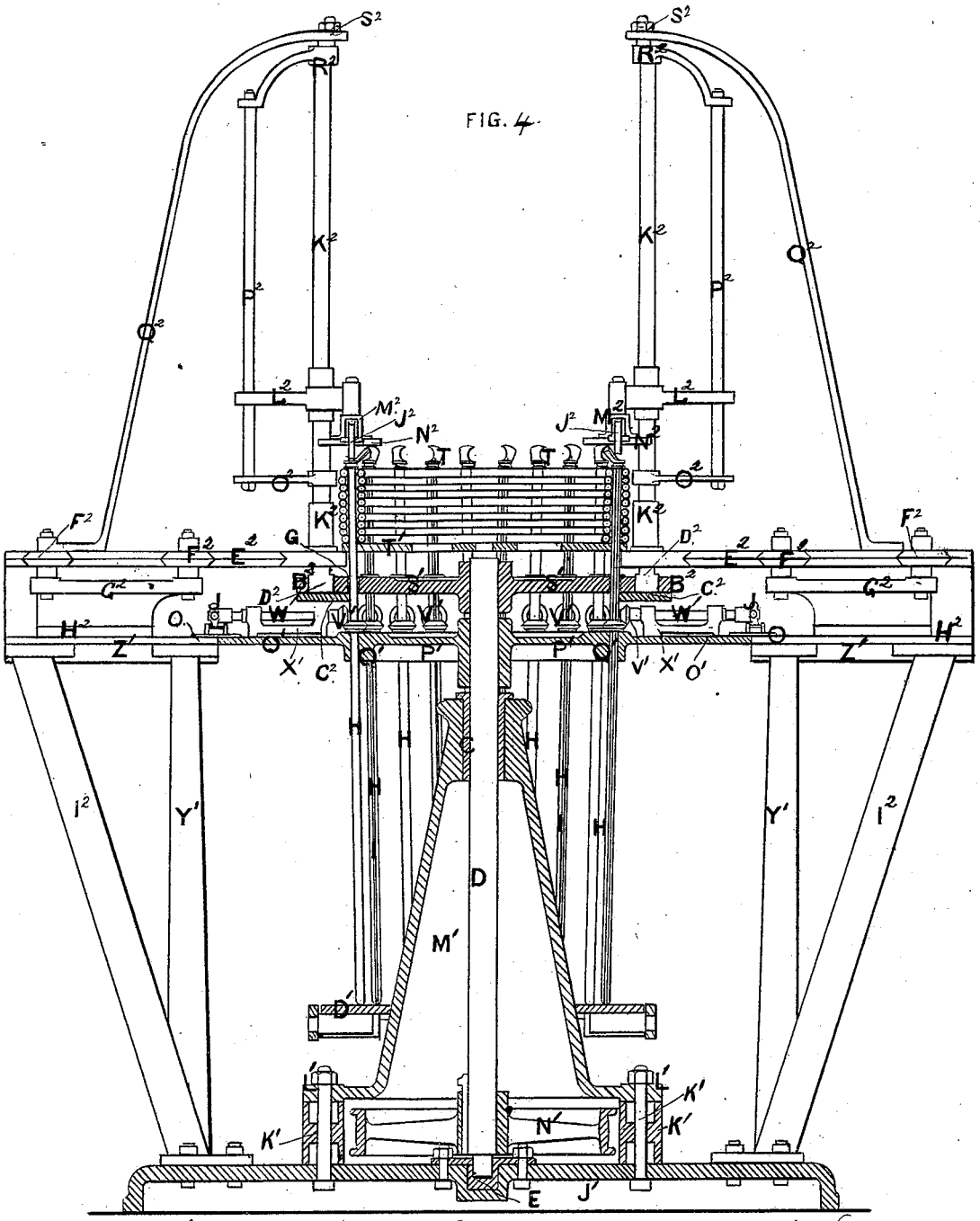
No. 204,825. **Patented June 11, 1878.**

FIG. 4.



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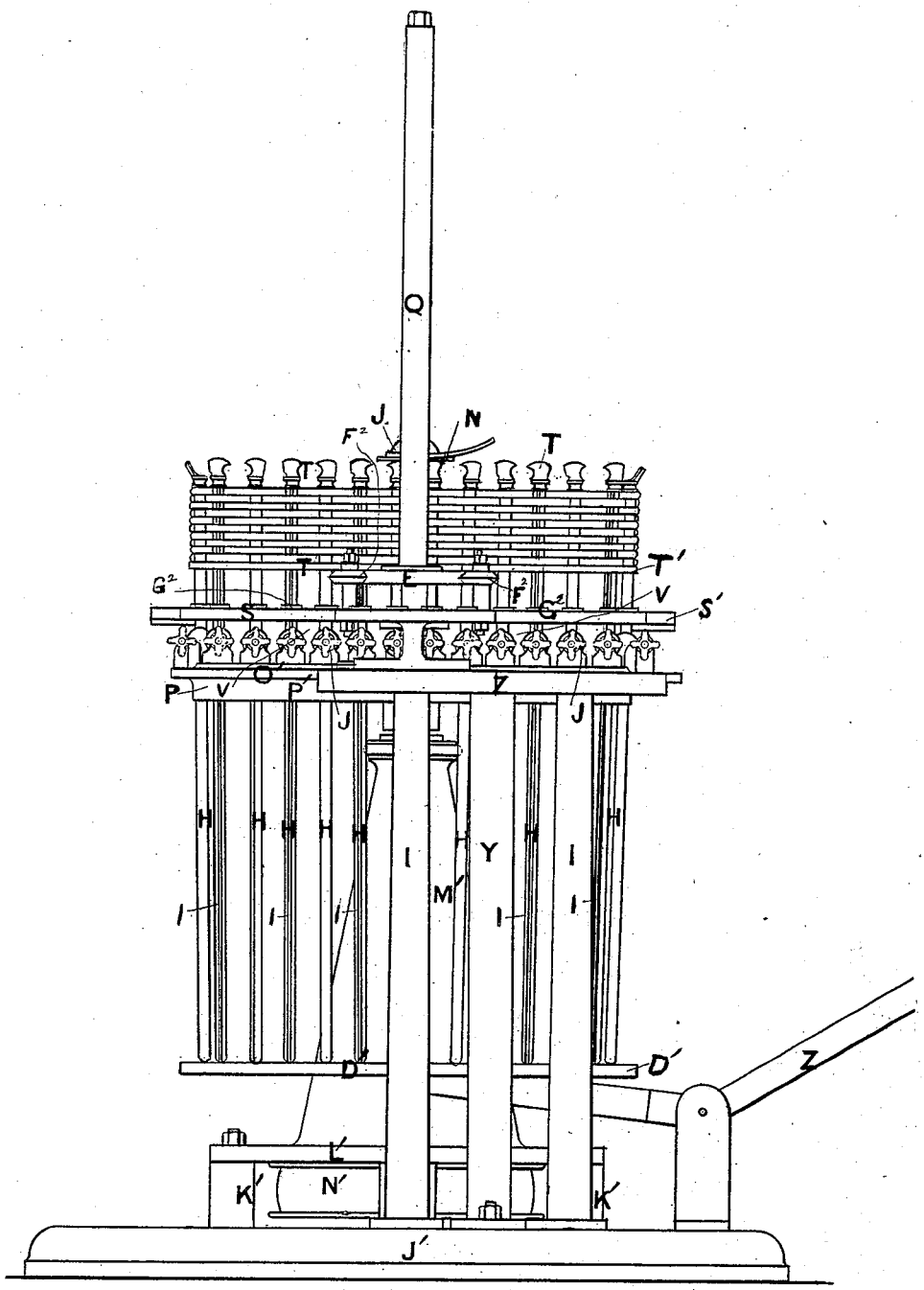
6 Sheets—Sheet 5.

W. ILLINGWORTH & C. ZEIDLER.

Machine for Making Skeps or other Baskets.

No. 204,825. **Patented June 11, 1878.**

FIG. 5.



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W. ILLINGWORTH & C. ZEIDLER.

Machine for Making Skeps or other Baskets.

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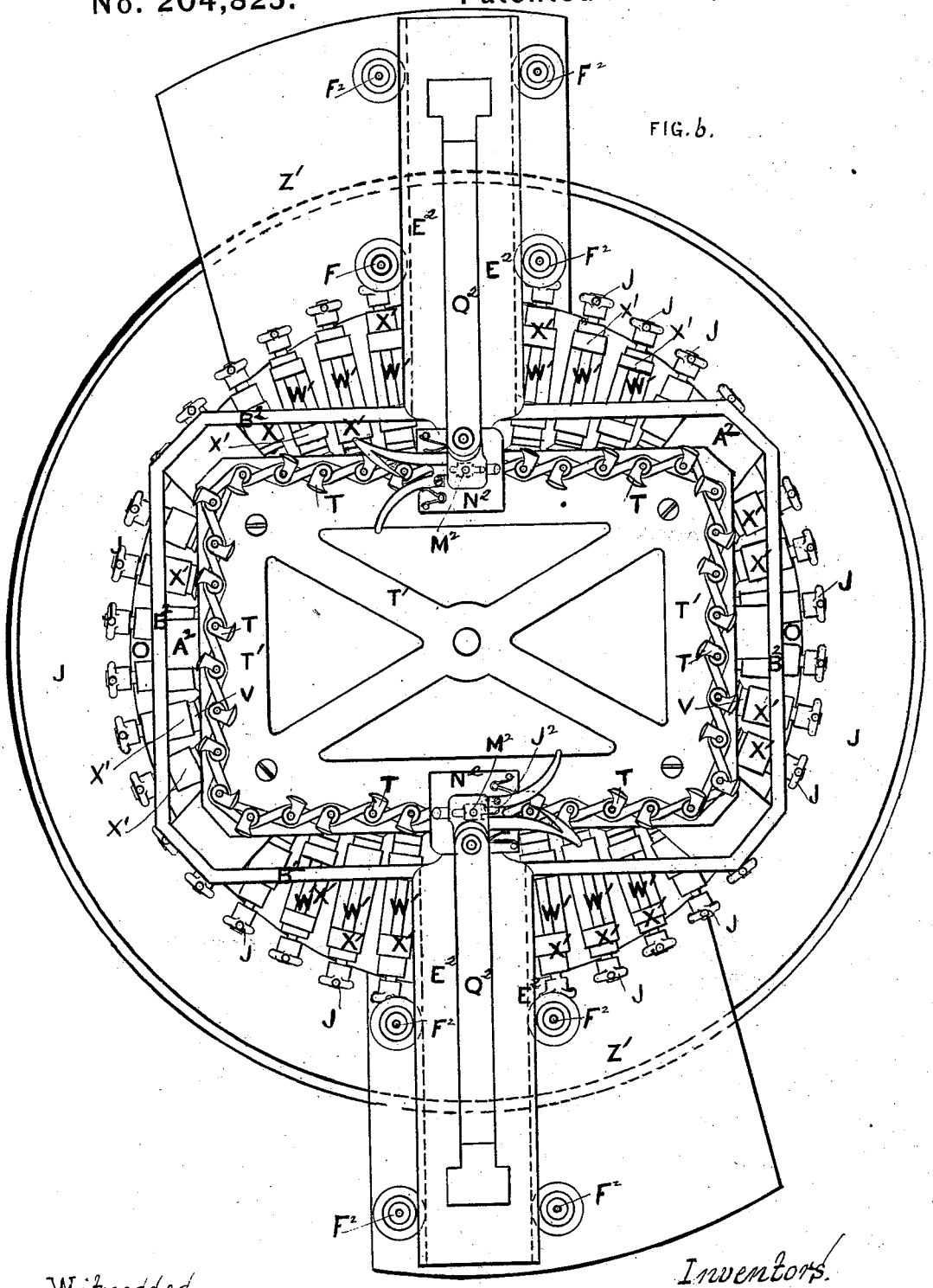
FIG. b.



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UNITED STATES PATENT OFFICE.

WILLIAM ILLINGWORTH AND CARL ZEIDLER, OF BRADFORD, ENGLAND.

IMPROVEMENT IN MACHINES FOR MAKING SKEPS OR OTHER BASKETS.

Specification forming part of Letters Patent No. **204,825**, dated June 11, 1878; application filed December 29, 1877; patented in England, April 13, 1877.

To all whom it may concern:

Be it known that we, WILLIAM ILLINGWORTH and CARL ZEIDLER, both of Bradford, England, have invented certain Improvements in Machinery or Apparatus for Making Skeps and other Baskets, (patented in England, November 7, 1876, sealed April 13, 1877,) of which the following is a specification:

The said invention relates to machinery or apparatus for making round, square, and oblong skeps and other baskets, whereby a great saving is effected and better work produced. For this purpose we fit in a foundation-frame a driving-shaft working in a step and in bearings fitted in a column cast or fixed on the foundation-frame top. Over the column is fitted on the shaft a circular plate or disk, having preferably in a working machine fitted near the edge a series of brass bushes, through which work long steel rods. The rods work through the bushes or holes, and they are cut with longitudinal slot openings to receive keys fitted in pinions, which actuate the rods. The pinions are fitted over the rods and work on the tops of the bushes, and are kept in position by a circular plate fitted over the pinions. The pinions are actuated by a rack or racks, and only the desired number (say, six) are actuated at a time, causing the steel rods to have a revolving motion.

At a convenient distance over the disk is fitted on the shaft another circular plate or disk, made larger in diameter than the bottom disk. In the disk are fitted in a circle another series of bushes, but in a larger circle than the bushes of the bottom disk. The steel rods work through the bushes, and at an inclination or angle. On the tops of the rods are screwed fingers made with coarse pitched screws and top guides. (Shown in enlarged detail in Fig. 2.) These fingers have, by the action of the rods, a revolving motion, and in such revolution one turns inward while its next adjacent one that is in action turns outward, and vice versa; and when they are raised or lowered, the whole series of rods, by reason of their positions, being inclined relatively to the central post or shaft, are caused at their tops either to diverge from or to converge toward each other—that is, to enlarge or diminish the area bounded by them, so as to give the incline to the sides of the skep or basket.

The pinions actuating the steel rods are worked by a rack or racks, giving half a turn of the steel rods and fingers to one turn of the disks. On the bottom part of the shaft is fitted a spur-wheel actuated by a pinion fitted on a shaft, which can be turned by hand-gear or by pulley and strap. The pinion can be made with a clutch-box and gear.

The apparatus having been lowered to the required height by means of a lever hereinafter described, the operator places a few wickers in and out round the fingers, and the apparatus is thrown into gear and started. The wickers or willows come in contact with a guide-plate hereinafter named, and marked I′, placed over the fingers and near the starting-point. The wickers pass in the coarse screws or threads of the fingers, and are guided therein by the guide formed on the fingers.

As the operation of making the skep or basket proceeds the circle or figure circumscribed by the tops of the steel rods gradually expands by the gradual rising of the whole series of rods, and the apparatus is left to work until the required height to be given to the skep or basket is obtained. The machine is then stopped. The fingers on the rods are then removed, and stake-holders are forced in the openings of the skep or basket and trimmed off.

For making square or oblong skeps or baskets a similar apparatus to that hereinbefore described is employed, except that the steel rods in this case are fitted in bushes fixed in squares or oblongs, and the pinions are driven by other pinions fitted on graduated shafts working in a circle.

But, in order that our improvements may be better understood, we will proceed to more particularly describe the same by reference to the accompanying drawings, in which—

Figure 1, Sheet 1, represents an elevation of an apparatus for making round skeps or baskets; Fig. 2, Sheet 2, a sectional elevation; and Fig. 3, Sheet 3, a plan of the same. Fig. 4, Sheet 4, represents a sectional elevation of an apparatus for making quadrangular or square skeps or baskets; Fig. 5, Sheet 5, a

side elevation; and Fig. 6, Sheet 6, a plan of the same.

Similar letters of reference are used in all the figures to represent similar parts.

In Sheets 1, 2, and 3, which show the apparatus for making round skeps or baskets, A A are the standards, supporting a column, B, in which are preferably fitted brass bushes C, forming the bearings in which works the driving-shaft D of the disks. The bottom of this shaft works in a step, E. Over the column, and fixed on the shaft D, is a circular plate or disk, F, having preferably fitted near the edge a series of brass bushes, G, through which work long steel rods H. These rods are cut with slot-openings I, in which work keys fitted to pinions J, which actuate the rods H. The teeth K of the pinions J are made to work clear of each other by placing adjacent ones in different planes, or at slightly different degrees of elevation, as shown in the drawings, or in any other convenient manner, and the pinions are kept in position by a circular framed plate, L, fitted over the pinions.

Over the disk F, and on the top of the shaft D, is fitted another circular plate or disk, M, larger in diameter than the disk F. In this disk may be also fitted a series of brass bushes, N, in a circle larger in diameter than that formed by those in the disk F. The steel rods work through the bushes and at an angle, their tops diverging farther from the center when raised upward, and converging nearer to each other when lowered.

The pinions J, actuating the steel rods H, are worked by a rack or racks, O, which is or are fitted on a plate, P, fixed on standards Q, secured to the base of the column B. The rack is formed with two studs, R, fitted in plates S, screwed or bolted on the top plate P. The disks F and M, revolving with the shaft D, cause the pinions actuating the steel rods in turn to come in contact with the rack O, giving these pinions an intermittent revolving motion, which actuates fingers T, made with coarse pitched screws U and top guides V. These fingers are screwed on the tops of the rods H, and the space or area circumscribed or bounded by these tops or guides is enlarged or expanded when the whole system of rods is raised, and it is caused to lessen or contract when the system of rods is lowered. The inclination of the rods gives the incline to the skep or basket. The rack gives half a turn of the steel rods H and fingers T to one turn of the disks F and M.

On the bottom part of the shaft is fitted a spur-wheel, W, actuated by another spur-wheel or pinion fitted on a shaft, X, working in bearings Y.

The shaft X can be turned by hand-gear or by a pulley and strap. The pinion or spur-wheel can be made with a clutch-box and gear, and the shaft D can be driven by a belt working over a pulley.

The steel rods of the apparatus having been lowered, the operator lifts the steel rods a sufficient height to commence operations by pulling back the lever Z. This lever is made with a fork, A^1, whose ends B^1 come in contact with the studs C^1, fitted to a circular plate, D^1, on which rest the bottom ends of the steel rods H, and this movement of the lever causes the lifting of the plate D^1 and of the steel rods, and it is kept in its desired position as long as desired by the catch E^1.

The lever Z works in a bracket, F^1, bolted to the bottom flange of the column B, and the circular plate is guided by the guide-rods G^1, also fitted in the bottom flange of the column. The operator places wickers in and out of the steel rods, forming the upset, the bottom wickers resting on a circular ring-plate, H^1. The apparatus is then started, and the operator passes a wicker or willow through a guide, I′, placed over the fingers T, and near the starting-point. The wicker is then guided in the coarse screws of the fingers, and as it is laid to place around the basket under construction it is given by the fingers the requisite in-and-out or zigzag course required. When the wicker is worked in, the operator places another wicker or willow in position, and so on until the skep or basket is finished.

As the operation of making the skep or basket proceeds, the steel rods gradually rise and diverge, and the apparatus is left to work until the required height to be given to the skep or basket is obtained. The wickers or willows gradually lift the steel rods as they are working in and out of the rods. The machine is then stopped, the fingers on the steel rods are removed, and the rods lowered, and stake-holders forced in the required openings of the skep or basket and trimmed off.

For making square skeps and baskets we employ the apparatus shown in Figs. 4, 5, and 6, Sheets 4, 5, and 6.

On a foundation-plate, J^1, are fitted metal blocks K^1, on which fits the flange-plate L^1 of a column, M^1, fitted with a brass bush, C. In the foundation-plate is fitted a step, E. Through the bush C, and on the step E, is fitted a driving-shaft, D, which is actuated by a pulley, N^1, and strap, or it may be driven by wheel-gear. Over the top of the column M^1 is fitted and fixed on the shaft D a circular table, O^1, having a projecting part, P^1, which may be formed with flanges or rims. In this table or through its flanges are drilled a series of holes, through which work long steel rods H, which may also work through a series of brass bushes, G. These may be fitted in a square or other plate adapted to the general form or construction of the machine, and fixed on the top of the shaft D. Over the plate S^1 is fitted a frame, T′, which is fitted and fixed to it. The steel rods H, as before stated, are cut with slot-openings, indicated by I in the drawings, and the rods are actuated to turn them by miter-wheels V′, (see Fig. 4,) or by pinions which are fitted on graduated shafts W′, which work in graduated bearers X′, and are fitted on the circular table O^1, the miters or pinions

fitted over the steel rods being so connected in any appropriate manner to these rods as that when the pinions are turned the rods shall turn with them. This turning of the rods gives to the fingers I at their extremities the alternate in and out movements toward and away from the center of the machine, as heretofore named, for making round skeps and baskets, the steel rods working at a slight angle, as already stated.

Near the edge of the circular table O^1 are fitted plates Z′, fixed to columns Y′, which are fitted on the foundation-plate J^1. On the plates Z′ are fitted racks O, similar in construction to those employed for the round skep apparatus, but turned over on the side. The circular table O^1 revolving causes the pinions J, fitted on the ends of the graduated shafts W′, to come in contact with the racks, turning the shafts and actuating the miters, giving the steel rods an intermittent revolving motion. On the steel rods are fitted fingers T, as hereinbefore described. The bottom parts of the steel rods are supported on a plate, D^1, which is actuated by a lever, Z, in a similar manner to the round-skep apparatus.

For guiding the willows we employ an apparatus constructed with a tappet-race, A^2, (see Fig. 6,) bounded by a raised rib or guide, B^2, on the plate S^1. In this race work tappets D^2, which, as the apparatus revolves, actuate slides E^2. These slides are made with V-shaped guides on their sides or edges, in which work friction-rolls F^2, guiding the slides, these rollers being fitted on standards G^2 (see Fig. 4) fixed to plate H^2, supported on columns Y′. In the race, and close behind the tappets, are fixed small brackets, acting on the tappets when the feeding-guides come opposite the fingers ready to receive the willows. These small brackets cause the tappets to bring the feeding-pulleys J^2 always square with the fingers T. The tappets D^2 are fixed on shafts K^2. The brackets L^2 on these rods carry the feeding-guide plate M^2, willow-guides N^2, and feeding-guide pulleys J^2. Other brackets, O^2, are fitted on the shafts K^2, through which are fitted guide-rods P^2. On the tops of the shafts K^2 are fitted stays Q^2, and on the tops of the bosses R^2, which connect K^2 to P^2, may be fitted small eccentric-pins S^2, or equivalent devices, to steady the shafts K^2 and rods P^2, and to adjust them in order to adapt them to the inclined positions of the steel rods.

In making oblong skeps or baskets we employ a similarly-constructed apparatus, but the steel rods are fitted in holes drilled in an oblong, and the revolving projecting parts are also made oblong instead of square.

Having thus described our improvements, and the best means we are acquainted with for carrying the same into effect, we would have it understood that we do not confine ourselves to the precise details shown and described, as they may be varied without departing from the peculiar character of the invention; but

What we do claim is—

1. In a machine for making round, square, or oblong skeps or other baskets, the series of rods H, severally surmounted by a finger, T, having a coarse pitched screw, U, and top guide V, combined with mechanism, substantially as described, for imparting to the rods and their fingers a turning motion, as and for the purpose set forth.

2. In combination with the rods H and their fingers T, constructed and operating as set forth, the devices, substantially as described, for giving a rotary motion to the whole system of rods.

3. In combination with the rotary system of rods, adapted to be raised and lowered, as described, and provided with the fingers T, the pinions J on the rods, and through which the rods are free to rise and fall, as set forth.

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